

Syllabus for Bachelor of Computer Application (BCA) Programme
(Effective for Students Admitted in Academic Session 2018-2019)

Paper: Computer Graphics

Code : BCAN-303

Contacts Hours / Week : 4L+1CE

Credits : 3

1. Module I: Introduction to Computer Graphics(4L) Introduction to Computer Graphics & Graphics systems, Graphics Display Devices, Raster and Random Scan Display
2. Module II: Line Drawing (5L) Points & Lines, Line Drawing Algorithms (DDA Algorithm, Bresenham's Line Drawing Algorithm)
3. Module III: Circle Drawing Algorithm (5L) Circle Generation algorithm (Midpoint Circle Algorithm, Bresenham's Algorithm)
4. Module IV: 2D Transformations (12L) Translation, Rotation, Scaling, Reflection, Shear etc. Homogenous Coordinates, Composite Transformation
5. Module V: Projection (2-dimension) (5L) Line of Sight, Plane of Projection, Projection methods (Perspective and Parallel)
6. Module VI: Viewing and Clipping (5L) Window to Viewport co-ordinate transformation, Point Clipping, Line Clipping (Cohen-Sutherland Line Clippings, Midpoint Sub-division Algorithm)
7. Module VII: Curves and Surfaces (4L) Bezier Curves, B-splines, Hidden line/surface removal methods (Depth Buffer (Z-Buffer) Method)

Suggested Readings:

- 1. Introduction to Computer Graphics, A. Mukherjee, VIKAS**
- 2. Computer Graphics, Rajiv Chopra, S. Chand**
- 3. Procedural & Mathematical Elements in Computer Graphics, Rogers, TMH**
- 4. Computer Graphics, Hearn & Baker, PHI**